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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/758,434	DARUWALLA ET AL.	
	Examiner	Art Unit	
	DeWanda Samuel	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 March 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 5-11 is/are rejected.
- 7) ☒ Claim(s) 3 and 4 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This communication is responsive to the communication filed on 03/24/2008.
2. Claims 1-11 are pending.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. **Claims 1 and 2** are rejected under 35 U.S.C. 103(a) as being unpatentable over Fijolek et al. (US Patent 6,510,162) in view of Fijolek et al. (US Patent 6,577,642) and in further view of Casey (US Patent 6,493,349).

With regard to claim 1, Fijolek et al. discloses having an apparatus for routing packets from a first network node to a second network node in a data network, Fijolek et

al. discloses having a cable modem termination system 12 in fig. 1 in a cable network that is routing data from a cable modem ("first network node" back to a cable modem ("second network node", fig. 5).

comprising: means for assigning and the sending first node identifier (ID) to the first node, wherein the first node ID uniquely identifies the first node; means for mapping the assigned first node ID with at least one VPN, wherein the first node ID is assigned, sent and mapped by an entity other than the first node; Fijolek et al. '162 discloses having a cable modem termination system 12 in fig. 1 that assigns service identifiers (SIDs" ID") to CM (cable modems, "first node" column 15 line 17-18). However, Fijolek et al. '162 does not disclose having the means for mapping the assigned ID with at least one VPN, wherein the ID is assigned, sent and mapped by an entity other than the first node. Fijolek et al. '642 discloses having method and system for virtual network administration with data-over cable system (title). Fijolek et al. '642 further discloses first networking devices includes a virtual network tag ("mapping at least one VPN") and a network address("first node ID", column 28 line 22-43). However, Fijolek et al. '642 does not disclose mapping between the first node ID and the least one VPN. Casey discloses having extended Internet protocol virtual private network architectures (titles).., also assigning a VPN (ID) to a first router ("first node") linking ("mapping") VPN...VPN assigned and linked second router ("entity other than first node", column 2 line 10-18).

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention was made to have a to a cable modem termination system 12 (CMTS) as taught by Fijolek et al. '162 associating a first networking devices with a virtual network tag (" mapping at least on VPN") and a network address ("first node ID") Fijolek et al. '642 linking a VPN identifier to a first router as taught by Casey to provide a more scalable VPN infrastructure.

means for receiving a packet from the first node, said packet from the first node, said packet including the first node ID, and including routing information for routing said packet to a destination address associated with said second node; Fijolek et al. discloses having a packet format for a incoming packet being received form a CM (cable modem, column 15 table 9 and 10 line 25-67).

means for examining the packet to identify the first node ID of the first node; Fijolek et al. discloses the cable modem termination system 12 (CMTS) have the means of examining incoming packets with service identifiers (SID, column 15 line10-67).

and means for using said first node ID, routing information and the mapping between the first node ID and the least one VPN to determine whether said first node is associated with at least one VPN. Fijolek et al. discloses having a unique service identifier (SID) corresponding to a cable modem (CM) and the SID and routing information transmitted in a packet. However, Fijolek et al. does not disclose first node is associated with at least one VPN. Fijolek et al. '642 discloses having method and system for virtual network administration with data-over cable system (tile). Fijolek et

al. '642 further discloses first networking devices includes a virtual network tag ("mapping at least on VPN") and a network address("first node ID", column 28 line 22-43). However, Fijolek et al. '642 does not discloses mapping between the first node ID and the least one VPN. Casey discloses having a VPN identifier being linked to a first router (column 2 line 10-18).

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention was made to have a to a cable modem termination system 12 (CMTS) assigning a unique identifier SID within a packet as taught by Fijolek et al. '162 associating afirst networking devices with a virtual network tag (" mapping at least on VPN") and a network address ("first node ID") Fijolek et al. '642 linking a VPN identifier to a first router as taught by Casey to provide a more scalable VPN infrastructure.

With regard to claim 2, in combination Fijolek et al. '162 , Fijolek et al. '642 and Casey teaches the apparatus recited in claim 1 .Further comprising means for routing the packet to the second node. Fijolek et al. discloses in fig. 1 that the cable modem termination system 12 (CMTS) has the means to transmit a packet to a second CM (cable modem, "second node").

6. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable Over Fijolek et al. (US Patent 6,577,642) in view of f Rosen et al. ("BGP/MPLS VPNs" 1999) and Casey (US Patent 6,493,349).

With regard to claim 5, Fijolek et al. discloses an apparatus for associating nodes in a data network with at least one virtual private network (VPN), the data network including an access network having at least one Head End device and a plurality Of nodes, the access network further including at least one shared access channel utilized by a first and a second node of the plurality of nodes to communicate with the Head End device, Fijolek et al. discloses having a cable modem termination system 12 in fig 1 located in a head end of cable system 26 (fig. 1). It is conventional that a cable modem termination system can operate as point-to-point or point-to-multipoint and that the cable modem are bi-directionally communicating with the head end. Fijolek et al. discloses having a virtual networking administration in a data-over-cable-system 10 using a network address and the first virtual networking tag stored in a virtual networking table associated with the second network device to provide selected first network devices a desired networking service on a virtual network via the data-over-cable-system (column 28 line 34-43).

Fijolek et al. does not discloses said apparatus comprising: means for determining whether said first node is a member of at least one VPN; Rosen et al. discloses having a method in which a service provider with an IP backbone may provide VPNs (Virtual

Private Networks) for its customers with MPLS (Multiprotocol Label Switching) is used for forwarding packets over the backbone (Abstract). It is inferred that this mechanism can be implemented in the head end of a cable system 26. Rosen et al. further discloses assigning packets to a particular site (page 7 line 12-13)...also a packet's destination address, is matched against a VPN-Ipv4 route ("page 8 line 49-51). It is inferred that the packets contains the information of the device or node from which it came from.

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention was made to have a virtual networking administration in a data-over-cable-system 10 9 column 28 line i8-19) as taught by Fijolek et al. matching a destination address against a VPN-Ipv4 route as taught by Rosen to provide a mechanism that will transmit packets to a specific VPN.

the means for if it is determined that said first node is a member of at least one VPN, assigning and then sending an identifier (ID) to the first node and binding the ID of said first node with said VPN to thereby cause said first node to be associated with said VPN, wherein the ID is assigned, sent and then bound by an entity other than the first node, wherein the ID uniquely identifies the first node. Fijoleket al. discloses having a cable modem termination system 12 in fig. 1 that assigns service identifiers (SIDs) to CM (cable modems, column 15 line 17-18). Fijolek et al. further discloses having method and system for virtual network administration with data-over cable system (tile). In addition, Fijolek et al. discloses first networking devices includes a virtual network

tag (" mapping at least on VPN") and a network address("first node ID", column 28 line 22-43). However, Fijolek et al. does not discloses mapping between the first node ID and the least one VPN. Casey discloses having extended Internet protocol virtual private network architectures (titles)..., also assigning a VPN (ID) to a first router ("first node") linking ("mapping") VPN...VPN assigned and linked second router ("entity other than first node", column 2 line 10-18).

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention was made to have a to a cable modem termination system 12 (CMTS) associating a first networking devices with a virtual network tag (" mapping at least on VPN") and a network address ("first node ID") Fijolek et al. incorporating linking a VPN identifier to a first router as taught by Casey to provide a more scalable VPN infrastructure.

With regard to claim 6, in combination Fijoleck et al. and Casey teaches the apparatus recited in claim 5. further including means for mapping a particular sub-interface of the Head End to said particular VPN. Fijoleck et al. discloses having a head end of cable system in fig. 1. Fijoleck et al. further discloses having a virtual networking administration in a data-over-cable-system 10 using a network address and the first virtual networking tag stored in a virtual networking table associated with the second network device to provide selected first network devices a desired networking service

on a virtual network via the data-over-cable-system (column 28 line 34-43). However, Fijoleck et al. does not disclose means for mapping a particular sub-interface of the Head End to said particular VPN. Rosen et al. discloses having a method in which a service provider with a IP backbone may provide VPNs (Virtual Private Networks) for its customers with MPLS (Multiprotocol Label Switching) is used for forwarding packets over the backbone (Abstract). Rosen et al. discloses that one could divide the interface into multiple "sub-interfaces"... and assign the packets to a VPN based on the on the sub-interface over which it arrives (page 7 paragraph 3.1 line 11-17). It is inferred that this mechanism can be implemented in the head end of the data-over-cable-system and that the head end also can limited to a particular VPN.

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention was made to have a virtual networking administration in a data-over-cable-system 10 as taught by Fijolek et al. assign the packets to a VPN based on the on the sub-interface over which it arrives as taught by Rosen et al. to provide a mechanism that will restrict packets access into VPNs that are not assigned to the packet.

7. Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fijolek et al. (US Patent 6,577,642) and Rosen et al. ("BGP/MPLS VPNs" 1999) and Casey (US Patent 6,493,349) as applied to claim 5 above, and further in view of

Gilbrech (US Patent 6,173,399).

With regard to claim 7, in combination Fijolek et al. and Casey teaches the apparatus recited in claim 5. further comprising: means for receiving at said Head End device a packet from said first node, said packet including a destination address corresponding to a second node in the network, Fijolek et al. discloses having a head end of a cable system 26 in fig.1 which has the means to send and receive packets from cable modems..., such configurations may be "one-to-one", "one-to-many" or "many-to-many" (column 7 line 20-38). Fijolek et al. further discloses having means for examining said packet to identify the ID of said first node; Fijolek et al. discloses the cable modem termination system 12 (CMTS) have the means of examining incoming packets with service identifiers (SID, column 15 line10-67). and means for using said ID at said Head End device to determine whether said first node is a member of at least one VPN. Fijolek et al. discloses having a cable modem termination system 12a-c... also Fijolek et al discloses a cable television network headend is a central location (column 4 line 33-34). However, Fijolek et al. does not disclose first node is a member of at least one VPN. Gilbrech discloses having a VPN unit processing packet by examining the source and destination address of the packet. Gilbrech further discloses the VPN unit moderates data communication between members of a defined VPN group (column 2 line 45-48)... the VPN unit maintains a lookup table identifying members of a specific virtual private network groups. It is inferred that the VPN unit keeps record of an identifier of member in a table and each identifier is link to a virtual private network

groups.

With regard to claim 8, in combination Fijoleck et al., Casey, Rosen et al. and Gilrech teaches the apparatus recited in claim 7. Further comprising: means for if it is determined that said first node is a member of a first VPN, determining at said Head End device whether the destination address of said packet is within said first VPN. Fijoleck et al. discloses having a head end of a cable system 26 with a cable modem termination system 12 in fig. 1. Fijoleck et al. further discloses having a virtual networking administration in a data-over-cable-system 10 (column 28 line 18-19). However, Fijoleck et al. does not discloses that the first node is a member of a first VPN, determining at said Head End device whether the destination address of said packet is within said first VPN. Rosen et al. discloses having a method in which a service provider with an IP backbone may provide VPNs (Virtual Private Networks) for its customers with MPLS (Multiprotocol Label Switching) is used for forwarding packets over the backbone (Abstract). It is inferred that this mechanism can be implemented in the head end of a cable system 26. Rosen et al. further discloses when a packets destination address is matched against a VPN-IPv4 route (page 8 line 49-51). Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention was made to have a virtual networking administration in a data- over-cable-system 10 as taught by Fijolek et al. matching packets destination address

against a VPN-IPv4 route (VPN) as taught by Rosen et al. to provide a mechanism that will restrict packets from entering in VPNs that they are not associated with.

With regard to claim 9, in combination Fijoleck et al., Casey, Rosen et al. and Gilrech teaches the apparatus recited in claim 7. further comprising means for routing the packet to the second node. Fijoleck et al. discloses having a head end of a cable system 26 with a cable modem termination system 12 in fig. 1 routing packets to a cable modem..., the system configurations may be "one-to-one", "one-to-many" or "many-to-many" (column 7 line 20-38 and fig. 1). It is inferred that the head end have the capability to route packets to other cable modems in the network. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention was made to have a cable modem termination system 12 (CMTS) assigning a unique identifier SID within a packet as taught by Fijolek et al. being examined a VPN unit that associates identifying members with a virtual private network groups as taught by Gilbrech to provide a more secure cable network.

8. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fijoleck et al. (US Patent 6,577,642) in view of Casey (US Patent 6,493,349) and Rosen ("BGP/MPLS VPNs", 1999).

With regard to claim 10, Fijolek et al. discloses having a apparatus for configuring a Head End of an access network to route packets from a first node to a second node in the access network, Fijolek et al. discloses having a cable modem termination system 12 in fig 1 located in a head end of cable system 26 (fig. 1). the apparatus comprising: means for associating particular network nodes on the, access network with a first virtual private network (VPN) ; Fijolek et al. further discloses having a virtual networking administration in a data-over-cable-system 10 (column 28 line 18-19).

the means for assigning and then sending to the first node an identifier (ID), wherein the ID is assigned and sent to the first node by an entity other than the first node, wherein the ID uniquely identifies the first node; Fijolek et al. discloses having a cable modem termination system 12 in fig. 1 that assigns service identifiers (SIDs) to CM (cable modems, column 15 line 17-18). However, Fijolek et al. means for mapping the assigned ID with at least on VPN, wherein the ID is assigned, sent and mapped by an entity other than the first node. Casey discloses having extended Internet protocol virtual private network architectures (titles) .., also assigning a VPN (ID) to a first router ("first node") linking ("mapping") VPN...VPN assigned and linked second router ("entity other than first node", column 2 line 10-18).

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention was made to have a to a cable modem termination system. 12 (CMTS) as taught by Fijolek et al. along with a VPN ID assigned, sent, linked to first router and second router as taught Casey to provide a more scalable VPN infrastructure.

the means for associating the assigned ID with the first VPN to thereby cause the first node to be associated with the first VPN, wherein the assigned ID is associated by the entity other than the first node. Fijolek et al. (6,577,642) discloses having a cable modem termination system 12 in fig. 1 that assigns service identifiers (SIDs) to CM (cable modems, column 15 line 17-18). However, Fijolek et al. means for mapping the assigned ID with at least one VPN, wherein the ID is assigned, sent and mapped by an entity other than the first node. Casey discloses having extended Internet protocol virtual private network architectures (titles)...also assigning a VPN (ID) to a first router ("first node") linking ("mapping") VPN...VPN assigned and linked second router ("entity other than first node", column 2 line 10-18).

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention was made to have a to a cable modem termination system 12 (CMTS) as taught by Fijolek et al. along with a VPN ID assigned, sent, linked to first router and second router as taught Casey to provide a more scalable VPN infrastructure.

With regard to claim 11, in combination Fijoleck et al., Rosen et al. and Casey teaches the apparatus recited in claim 10. further means for including mapping a particular sub- interface of the Head End to the first VPN. Fijoleck et al. discloses having a head end of a cable system 26 in fig. 1. Fijolek et al. further disclose having a virtual network administration in a data-over-cable-system (column 28 line 18-19). However, Fijoleck et al. does not disclose means for including mapping a particular sub-interface of the Head End to the first VPN. Rosen et al. discloses that one could divide the interface into multiple "sub-interfaces"... and assign the packets to a VPN based on the on the sub-interface over which it arrives (page 7 paragraph 3.1 line 11-17). It is inferred that this mechanism can be implemented in the head end of the data-over- cable-system and that the head end also can limited to a particular VPN.

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention was made to have a virtual networking administration in a data-over-cable-system 10 as taught by Fijolek et al. assign the packets to a VPN based on the on the sub-interface over which it arrives as taught by Rosen et al. to provide a mechanism that will restrict packets access into VPNs that are not assigned to the packet.

Allowable Subject Matter

9. Claim 3 and 4 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

Prior Art

10. The prior art made record and not relied upon is considered pertinent to applicant's disclosure:

Jagannath et al. (US Patent 7,095,740) discloses having a method and apparatus for virtual overlay networks.

Le Goff et al. (US Patent 6,438,127) discloses having a process and apparatus for the operation of virtual private networks on a common data packet communication network.

Fox et al. (" Virtual Private Networks Identifier" RFC 2685, September 1999) discloses having using a Virtual Private Networks Identifier.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DeWanda Samuel whose telephone number is (571) 270-1213. The examiner can normally be reached on Monday- Thursday 8:30-5:30 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Q. Ngo can be reached on (571) 272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ricky Ngo/
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5/13/2008